

CAPITALFORECAST

PRESENTED BY: BRENT HAIR



Software for smarter operations

Today's Agenda

PART ONE

Welcome and Introductions

PART TWO

Dude Nation

PART THREE

Self Assessment

PART FOUR

3 Paths to a 30 Year Forecast

PART FIVE

Closing and Q&A

DUDE NATION

11,000+

Clients

Millions

of Users

18+ Years

of Operations Data

\$2 Billion

Energy Consumption
Tracked

100,000

Facility Schedules

1 Million

IT Assets

35 Million

Work Orders

500,000

Buildings

10 Billion+

GSF in Space

600+

Employees





97%

Client
Satisfaction
Rate



SOFTWARE TO SOLVE EVERY CHALLENGE THAT COMES YOUR WAY

EDUCATION

 WORK & ASSET MANAGEMENT	 EVENT MANAGEMENT	 ENERGY MANAGEMENT	 TECHNOLOGY MANAGEMENT
WORK & ASSET™	FACILITY SCHEDULING™	ENERGY ACCOUNTING™	HELP DESK™
CAPITAL FORECASTING™	COMMUNITY USE™	UTILITY BILL POPULATION™	IT ASSET DISCOVERY™
	PUBLISHING™	INTERVAL DATA RECORDING™	MDM™
	TRIP PLANNING™		

Overdue maintenance needs
have gone up by

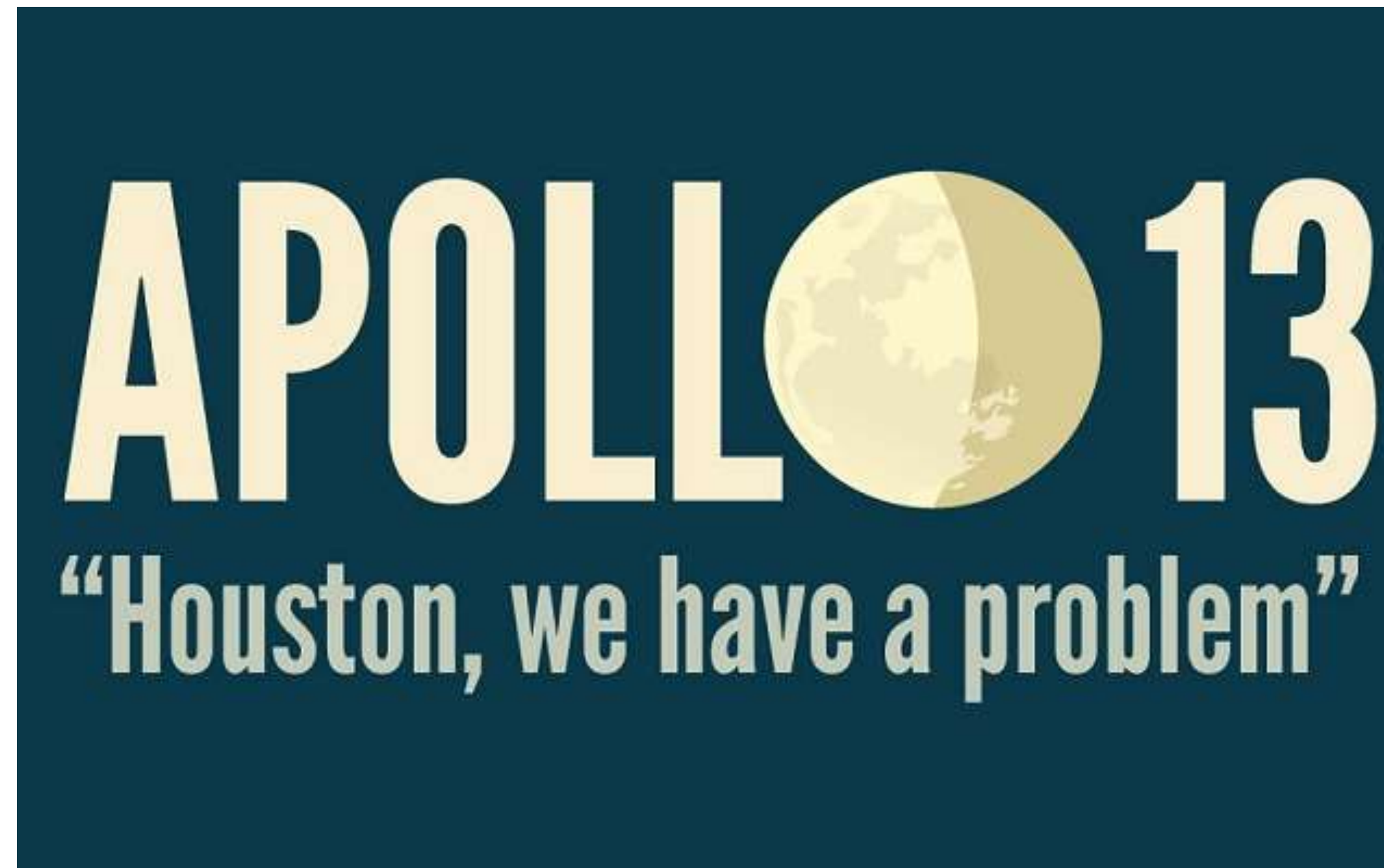
18%

In the past five years

AVERAGE COST PER STUDENT OF DEFERRED MAINTENANCE?

\$6,400+ per student!

Well...



SELF ASSESSMENT



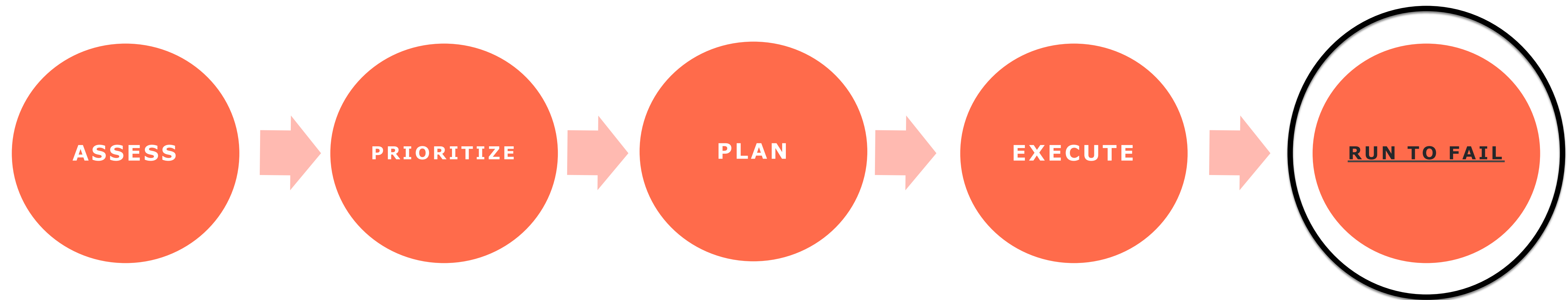
Where do you sit now?

- > Do you have a complete list of your equipment?
- > Do each of your assets have a PM plan associated with them?
- > Do you know the current value of your assets and their failure risks?
- > Do you have a plan for which assets should be replaced, when they should be replaced, and what the replacement costs are?
- > Do you know your deferred maintenance backlog?

Quick Question

- > How do you communicate this?

Typical Scenario



How can you be successful?

- > Plan for the future
- > Improve visibility
- > Optimize financial performance
- > Reduce compliance risk
- > Improve efficiency
- > Improve resident satisfaction



APPEM

Step 1 Assess: Create a detailed assessment for all parts of your building & equipment

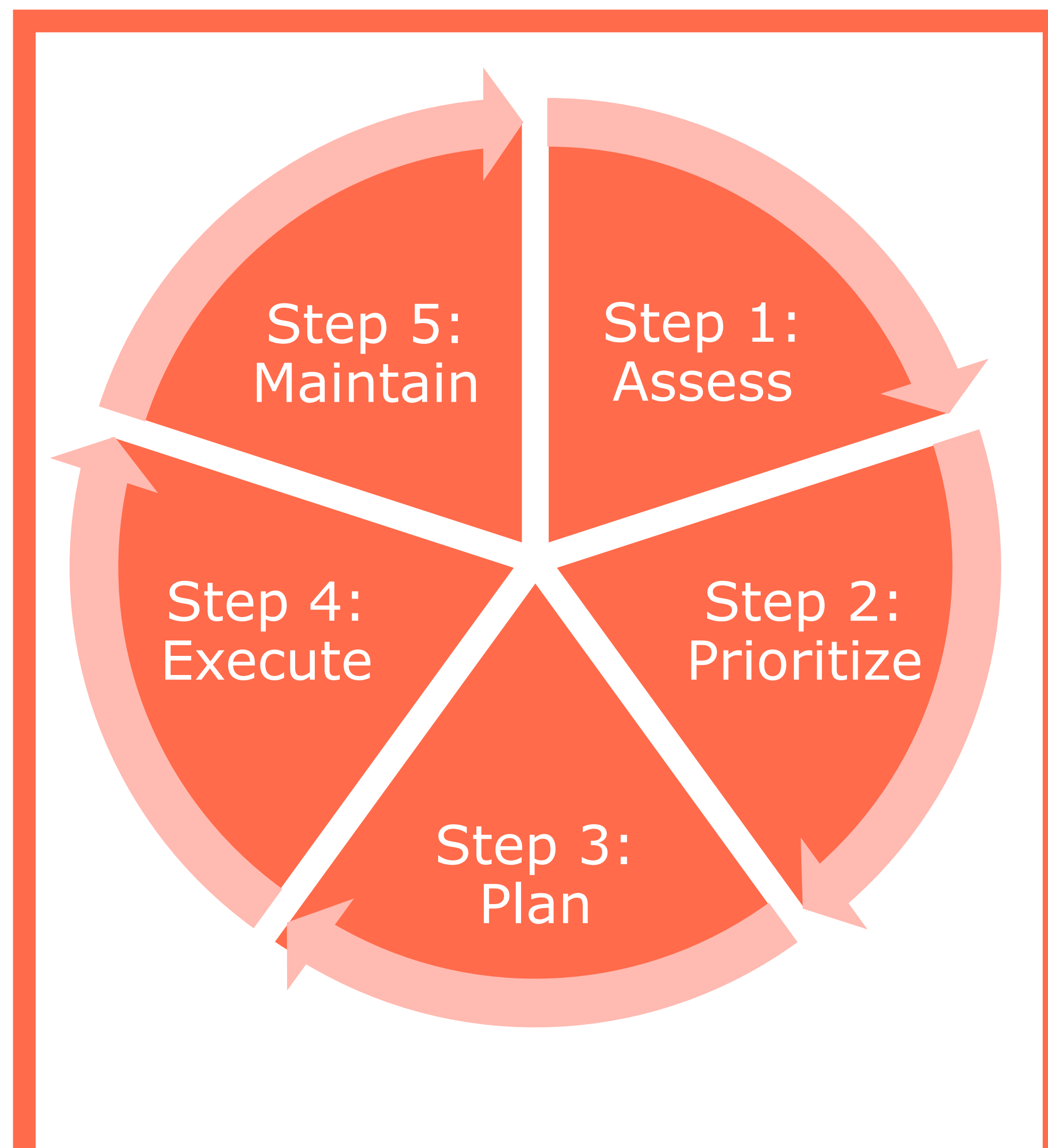
Step 2 Prioritize: Prioritize the needs

Step 3 Plan: Create an action plan for all items on the list

Step 4 Execute: Put the plan in motion

Step 5 Maintain: Keep your system up to date so you never start from 0 again

And... Repeat...



Where are we now?



Where do you want to go?



"We've
always done
it this way"



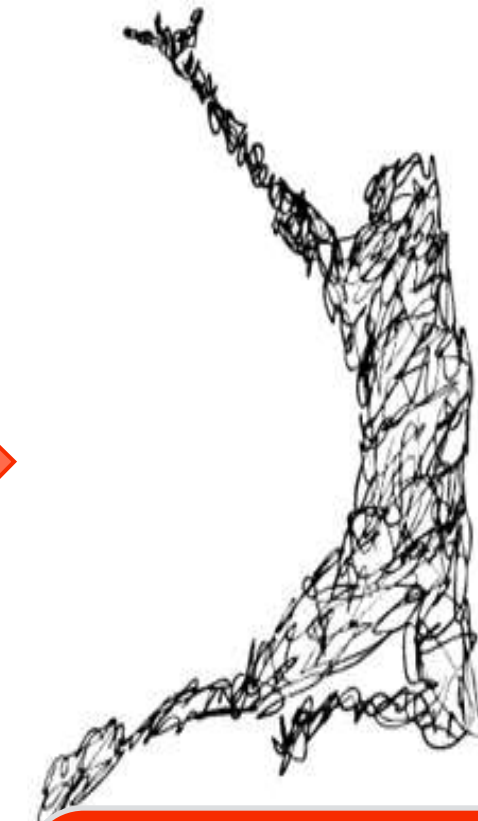
Basic Work
Order
Tracking



More Asset
Management
into
Preventative
Maintenance



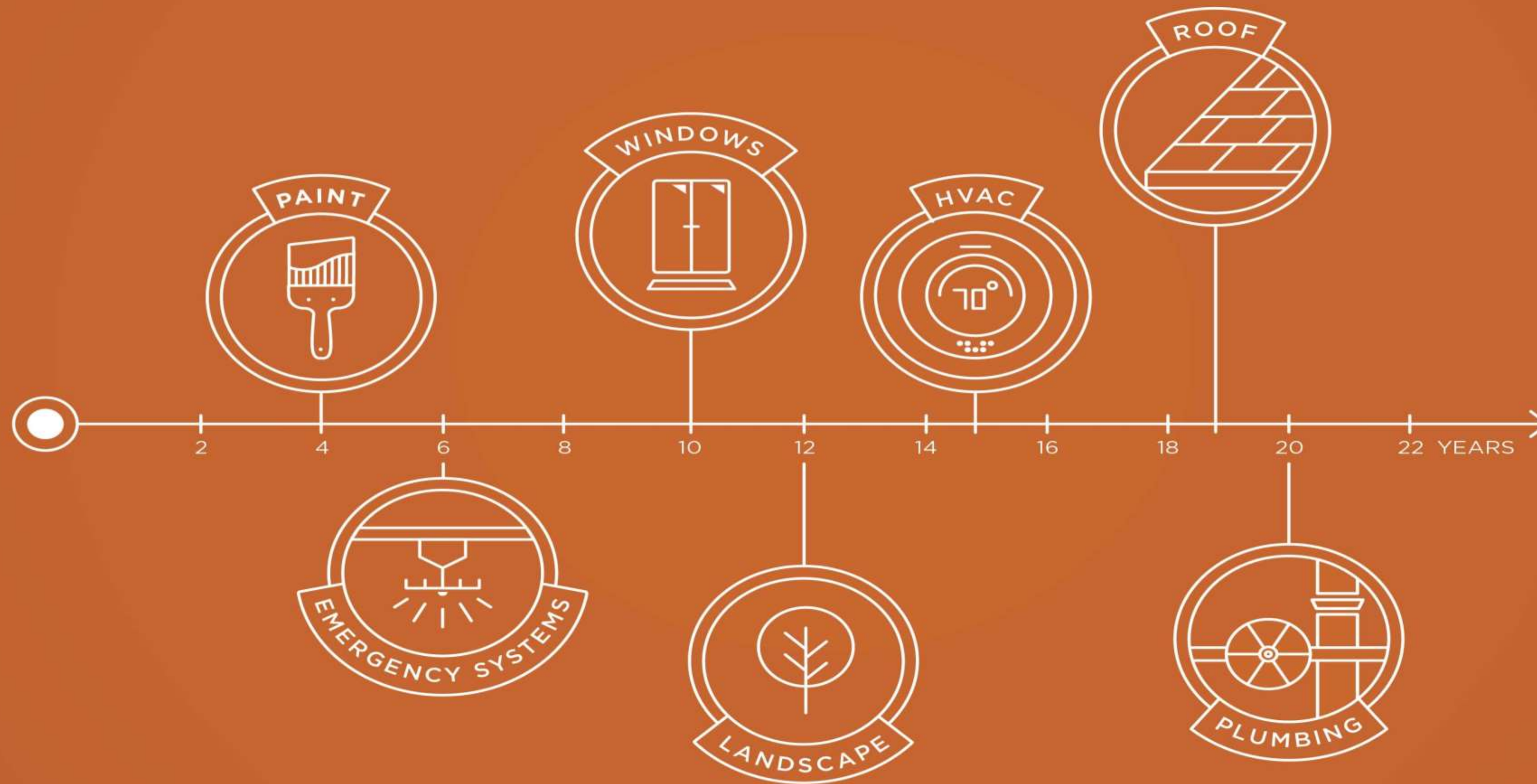
More Data:
Track Costs
Labor
Materials



Predictive
and insight
into:
What? Why?
Where?

● CAPITAL FORECAST

FORECAST THE FUTURE.
MANAGE IT NOW.



**REPAIR IS
REALITY**

Everything in our buildings will eventually need repair. And no one has an unlimited budget.

**NO COST AND NO
YEAR ARE THE SAME**

In the life of a building, every expense and budget year are different. And a spreadsheet can't keep up.

**YOU NEED A
FORECASTING TOOL**

You need a way to predict and prioritize your projects so you can level the spikes in your budget.

**BUILT WITH A
TRUSTED MODEL**

It must be built from best practices and life cycle data specific to your equipment and area of the country.

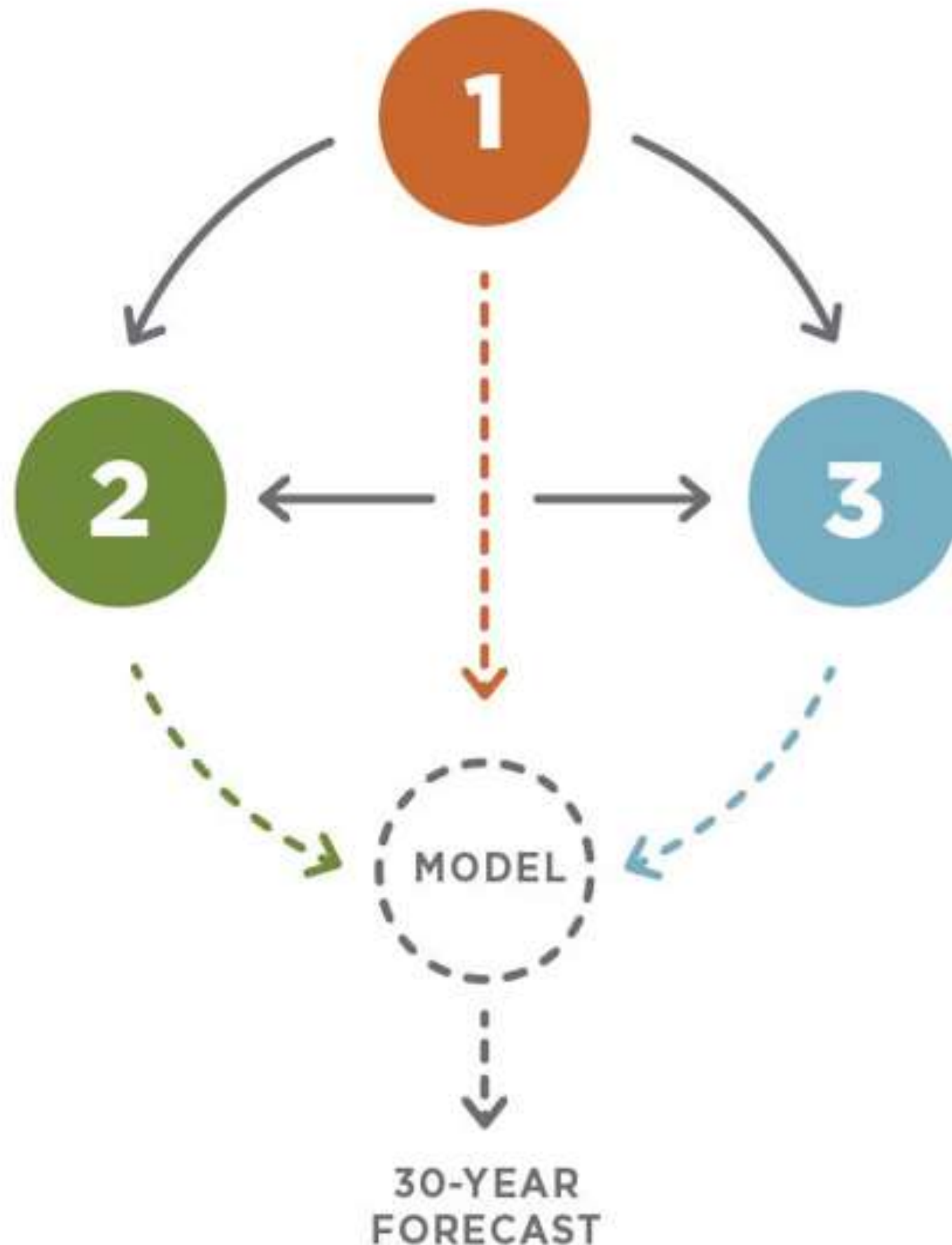
**MORE AT STAKE
THAN A BUDGET**

Know you're doing everything possible to maintain a safe learning environment for students and faculty.

3 PATHS TO A 30 YEAR FORECAST



THREE PATHS TO A 30-year forecast



1 ANSWER THREE SIMPLE QUESTIONS

In just three questions, you can start building your life cycle:

- Age of your building?
- Square footage?
- Building type?

From there you can easily customize the model based on your school and your equipment.

2 INPUT YOUR EXISTING ASSESSMENT

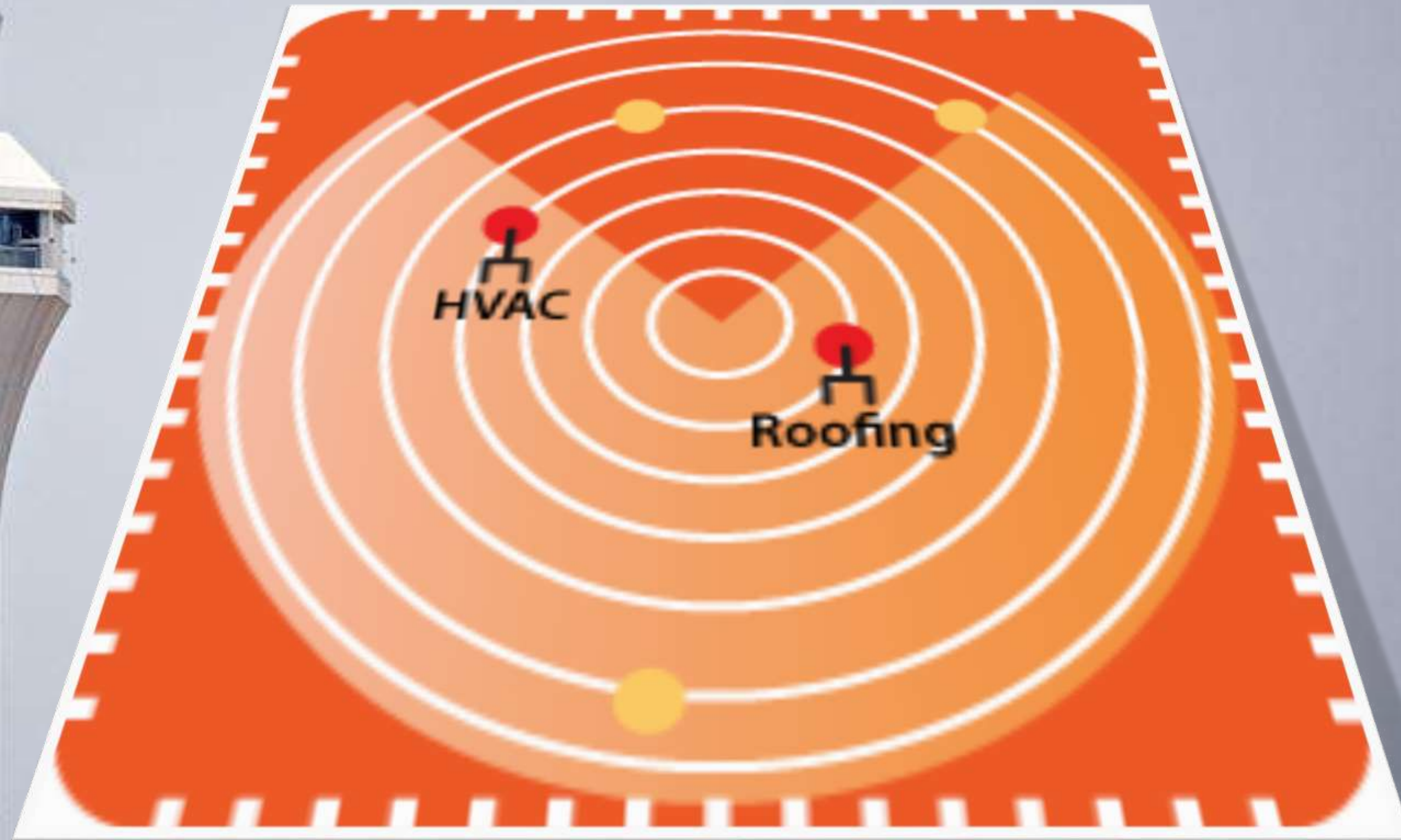
Depending on your state, you may already have an assessment. CapitalForecastDirect makes it easy to upload your data to bring your plan to life.

3 INPUT THE EQUIPMENT YOU TRACK

You may already track life cycles of your equipment. Easily upload this data so you can build a complete picture of your school and a plan going forward.

EITHER PATH YOU CHOOSE:

The result is a forecast that's clear, customizable, and actionable.



.PATH #1: Getting Started?

Update Location




Location Code

Location Description

Notes


Subscribe To Capital Forecast

Date Built 

Square Footage

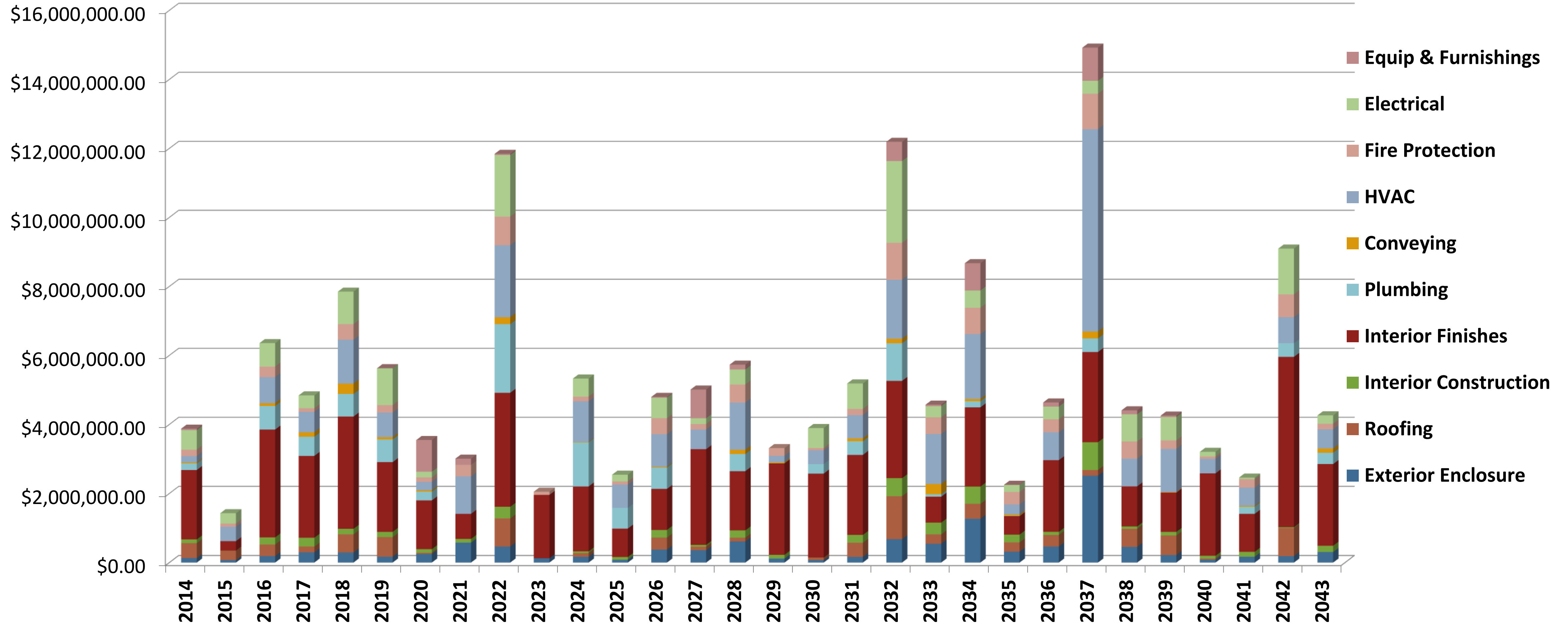
Location Used
By

CRV 

FCI 

Building Type

. Path #1 Report



. Capital Forcast - Systems

Foundation

Basement Construction

Superstructure - Floor & Roof Construction

Exterior Enclosure - Exterior Walls (Framing)

Exterior Enclosure - Exterior Walls (Finishes)

Exterior Enclosure - Exterior Windows

Exterior Enclosure - Exterior Doors

Roofing

Interior Construction - Partitions & Stairs

Interior Construction - Interior Doors

Interior Construction - Specialties

Interior Finishes - Wall Finishes

Interior Finishes - Floor Finishes

Interior Finishes - Ceiling Finishes

Conveying Systems

Plumbing - Plumbing Fixtures

Plumbing - Domestic Water Distribution

Plumbing - Sanitary Waste

Plumbing - Rain Water Drainage

HVAC - Energy Supply

HVAC - Heat Generating Systems

HVAC - Cooling Generating Systems

HVAC - Distribution System

HVAC - Terminal & Package Units

HVAC - Controls & Instrumentation

Fire Protection - Sprinklers & Standpipe

Fire Protection - Fire Alarm & Detection

Electrical - Service & Distribution

Electrical - Branch Wiring

Electrical - Lighting

Electrical - Other Electrical Services

Equip & Furnishings - Commercial Equipment

Equip & Furnishings - Institutional Equipment

Equip & Furnishings - Vehicular Equipment

Equip & Furnishings - Other Equipment

.Creating a System

Add System

System | Roofing

Subsystem | EPDM (Rubber Membrane)

Unit Of Measure | Sq. Ft.

Cost & Life Cycle

Filtering

View Building Types starting with :

0 1 2 3 4 5 6 7 8 9 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z ALL

1 - 25 of total 57 listed

Items Per Page: 25 | 50 | 75 | 100

◀◀ Previous 25 Next 25 ▶▶

Building Type	Dude Life Cycle (Yrs)	Life Cycle (Yrs)	Dude Cost/UOM	Cost/UOM	Assigned
Administration Office	20	20	\$3.52	3.52	<input type="checkbox"/>
Apartment	20	20	\$3.19	3.19	<input type="checkbox"/>
Athletic Center	20	20	\$9.24	9.24	<input type="checkbox"/>
Auditorium	20	20	\$8.28	8.28	<input type="checkbox"/>

.CapitalForecast – Building Types

- ▶ Extensive list of Building Types
- ▶ You can define your own Building Types

CFD Building Types		
Administration Office	Dry Cleaning/Laundry	Parking Garage
Apartment	Elementary School	Passenger Terminal
Athletic Center	Fire Station	Post Office
Auditorium	Greenhouse	Pre-Manufactured Building
Bank	Guard House	Preschool
Barn	Health Clinic/Outpatient Surgery Center	Public Restroom
Bowling Alley	High School	Restaurant, Fast Food
Cafeteria	Hospital	Restaurant, Full-menu
Call Center	Hotel	Retail Store
Car Wash	Laboratory, Agriculture	Single Family House
Church	Laboratory, Biology	Skating Rink
Classroom	Laboratory, Electronics	Storage Shed
Community Center	Laboratory, General	Student Union
Convenience Store/Service Station	Library	Supermarket
Country Club	Maintenance Shop	Warehouse, Hazardous Materials
Data Center	Manufacturing Plant	Warehouse, Non-Temperature Controlled
Day Care Center	Motel	Warehouse, Temperature Controlled
Department Store	Motor Vehicle Service	
Distribution Center	Museum	
Dormitory	Natatorium	

.Create your Own Building Type – Add the Right Systems

Add Building Type ⌵ ⌵

Building Type |

CRV Cost/Sq.Ft. |

[+ Add System](#)

1 - 25 of total **35** listed Items Per Page: 25 | 50 | 75 | 100

[⏪](#) [Previous 25](#) [Next 25](#) [▶▶](#)

<input type="checkbox"/>	System
<input type="checkbox"/>	Basement Construction
<input type="checkbox"/>	Conveying Systems
<input type="checkbox"/>	Electrical - Branch Wiring
<input type="checkbox"/>	Electrical - Lighting
<input type="checkbox"/>	Electrical - Other Electrical Services
<input type="checkbox"/>	Electrical - Service & Distribution
<input type="checkbox"/>	Equip & Furnishings - Commercial Equipment

.CapitalForecast – Flexible Model data

- ▶ “Splitting” Systems – you can set up multiple Building Components (instances of Systems) at the same Building *and track replacement cost/date separately*
 - Example – The 1st floor walls in the Main Building need to be replaced sooner than the 2nd floor walls

. Building Component in Detail

Update Building Component

Generated By Building Component Setup

System HVAC - Terminal & Package Units

Code C595A0

Description

Location Laurie Auditorium

Building -- Select Bldg./Unit --

Area -- Select Area --

Area Number

Manufacturer -- Select Manufacturer --

Unit of Measure Sq. Ft.

Quantity 180000

Date Installed 4/23/1973

Last Replace Date 4/23/2003

Life Cycle (years) 15

Cost/UOM 23.4

Controlled By Model Manual

Field Definition
Life Cycle is the number of years the Building Component can exist before it should be renewed or replaced. The initial value for this field is inherited from the combination of selected System and the Building Type of the selected Bldg./Unit/Location.

Data Applied
System:
Bldg./Unit or Location: Laurie Auditorium
Building Type of Bldg./Unit or Location: Auditorium

Life Cycle: 15

Reference Value
Life Cycle = 15

Assessment

Condition Code -- Select Condition Code --

Condition Date

Total Actual Cost track from Needs(\$0.00) use manual entry

Cost 0

Miscellaneous Costs 0

Total Labor Hours track labor hours in WO(0) use manual entry

Hours 0

Est. Replace Cost \$3,032,640.00

Est. Replace Date 4/23/2018

Needs Controlled Model Manual

By Manual

[View Needs](#)
[Create Need](#)

. Capital Forecast – Plan Length/Needs

- ▶ Model will generate Needs for the next 30 years
- ▶ You determine how they want your Needs generated
 - > 1) Generate *all sequential Needs* that fall within the plan length
 - > 2) Generate one Need at a time.. Only the ‘next’ Need.
- ▶ You can turn on/off model generated Need(s) per Building Component
- ▶ You can manually generate Need(s) for *any* Building Component
- ▶ You can manually create Need(s) for Equipment, so the cost data will be added into report/forecasted expenditures

Need ID	Location	System	Classification	Work Order ID
Description	Bldg./Unit	Equipment/Building Component	Type	Est. Completion
Status	Source	Priority	Score	Est. Cost
126 Renewal/Replacement New Request	Laurie Auditorium Model	HVAC - Terminal & Package Units C595A0 Medium		➔ 4/23/2018 \$3,032,640.00
127 Renewal/Replacement New Request	Laurie Auditorium Model	HVAC - Terminal & Package Units C595A0 Medium		➔ 4/23/2033 \$3,032,640.00

. Path #2

CapitalForecast –Import Tools

- ▶ Import Needs found thru Assessments
- ▶ Export Needs, Update Needs in Excel, Reimport to do Mass Updates!
- ▶ Do the same with Building Components

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Need ID	Description	Location	Building	Area	Area Number	Asset Type	System	Building Component Code	Equipment	Status	Priority	Score	Source
2														
3														
4														
5														
6														

Sample Need Import Template

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	System Code	Description	Location	Building	Area	Area Number	Manufacturer	Date Installed	Last Replace Date	Life Cycle	Cost/UOM	Quantity	
2													
3													
4													
5													
6													

Sample Component Import Template

. Path #3

CapitalForecast – Equipment

Update Equipment

Item Number

* Item Number is a primary sort. Please use an identifier that will sort your equipment in an understandable way. You can use characters and/or numbers.

Description

Classification

Type

Status

Date Purchased

Date Placed

Date Removed

Original Cost

PO Number

Manufacturer & Location

Manufacturer

or New Manufacturer

Tag Number

Model Number

Serial Number

Location

Building

Area

Area Number

Supplier

or New Supplier

. Path #3 CapitalForecast – Equipment

Assessment

Condition Code -- Select Condition Code --

Condition Date

Track labor hours in WO(0)
 use manual entry

Total Labor Hours

track costs in WO(0)
 use manual entry

Maintenance Cost

Miscellaneous Costs

Total Costs 0

Notes

Yes, Include above notes on the printed work order form

Life Expectancy Units -- Select Units --

Life Expectancy

Est. Replace Cost

Est. Replace Date

Actual Replace Cost

Actual Replace Date

[View Work Orders](#)
[View Needs](#)
[Create Need](#)

Warranty

Title AHU Warranty

Status Active

Expiration 10/15/2016

Manufacturer Trane

Notes Warranty Notes

[Remove Warranty](#)

. Reports

Building Components (Estimated Replacement Costs) Graph

5. Graph Building Components by

- System
- Location
- Bldg./Unit

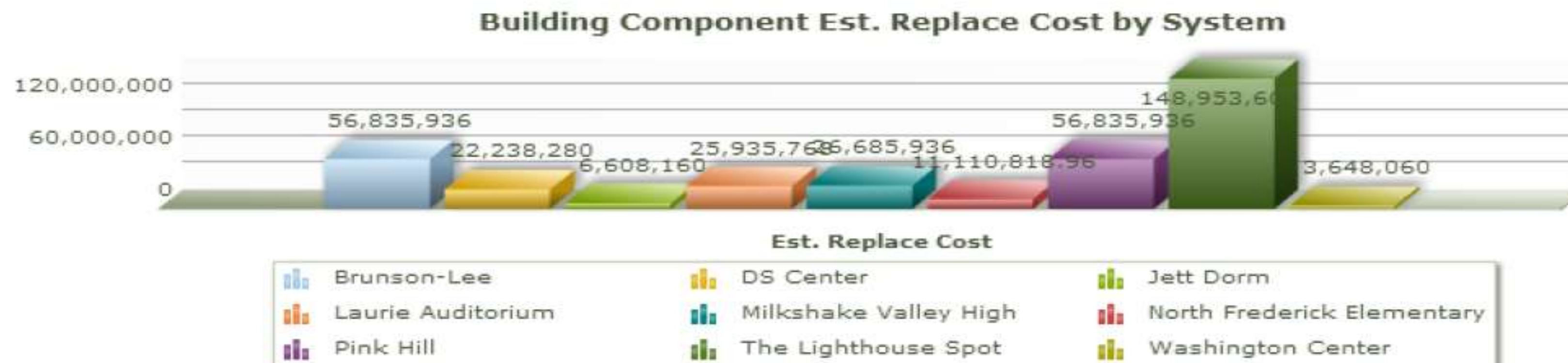
6. Select a Chart Type

- Bar Chart
- Horizontal Bar Chart
- Pie Chart
- Stacked Bar Chart
- Horizontal Stacked Chart

7. Chart Title

Building Component Est. Replace Cost by System

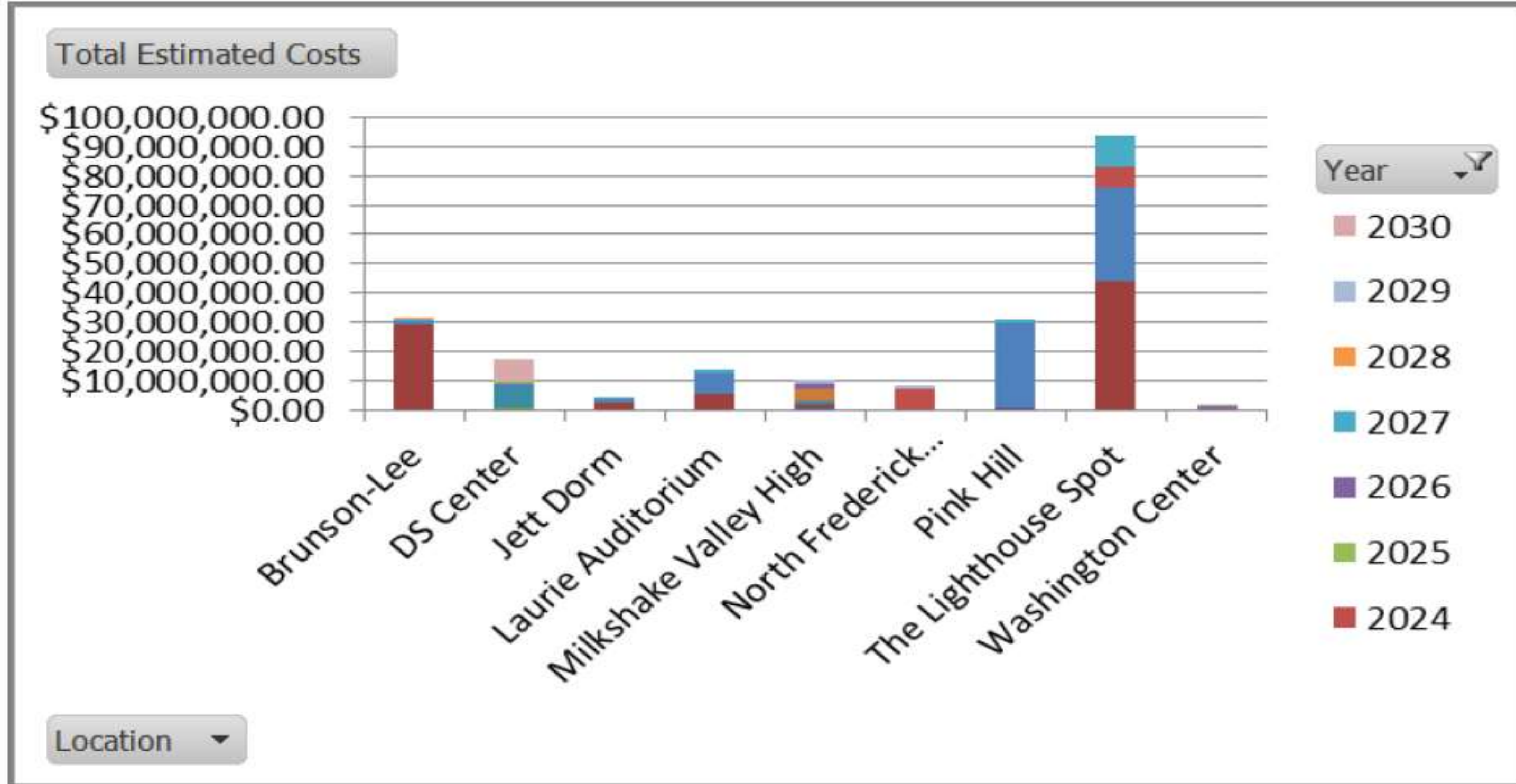
Refresh Graph



. Reports

Needs Summary Report

Total Estimated Costs	Year	2016	2017	2018	2019	2020	2021	2022	2024	2025	2026	2027	2028	2029	2030	Grand Total
Brunson-Lee		\$29,113,920.00						\$973,728.00			\$264,960.00	\$710,496.00	\$325,152.00			\$31,388,256.00
DS Center			\$925,560.00			\$6,934,680.00		\$1,235,520.00		\$652,320.00					\$7,560,000.00	\$17,308,080.00
Jett Dorm		\$2,295,648.00						\$1,440,000.00				\$700,416.00				\$4,436,064.00
Laurie Auditorium		\$5,683,176.00						\$6,664,032.00				\$1,517,616.00				\$13,864,824.00
Milkshake Valley High	\$782,784.00	\$1,110,672.00			\$1,482,624.00	\$4,192,560.00					\$1,292,112.00		\$1,110,672.00		\$9,971,424.00	
North Frederick Elementary									\$7,300,800.00		\$2,228.00		\$914,362.56		\$8,217,390.56	
Pink Hill		\$298,656.00		\$264,960.00	\$325,152.00		\$29,113,920.00					\$973,728.00				\$30,976,416.00
The Lighthouse Spot		\$44,121,600.00						\$31,795,200.00	\$7,408,800.00			\$10,389,600.00				\$93,715,200.00
Washington Center				\$502,380.00				\$457,020.00	\$695,700.00		\$31,860.00			\$130,860.00		\$1,817,820.00
Grand Total		\$782,784.00	\$82,623,672.00	\$925,560.00	\$767,340.00	\$8,742,456.00	\$4,192,560.00	\$71,679,420.00	\$15,405,300.00	\$652,320.00	\$1,591,160.00	\$14,291,856.00	\$325,152.00	\$2,155,894.56	\$7,560,000.00	\$211,695,474.56



Facility Condition Assessment Overview

1. Heating System
2. Ventilation System
3. Air Conditioning System
4. Roofing System
5. Electrical System
6. Plumbing
7. Vertical Transportation
8. Building Envelope
9. Structural Components
10. Site Paving
11. Commercial Kitchen
12. Life Safety/Security
13. ADA Compliance

Step 4: Execute & Maintain

- > And now it's time for The Dude to take over...
- > We should now have:
 - > Assets and building components loaded into Dude Solutions
 - > Including initial baseline assessment data
 - > Barcodes applied to the asset

Step 4: Execute & Maintain

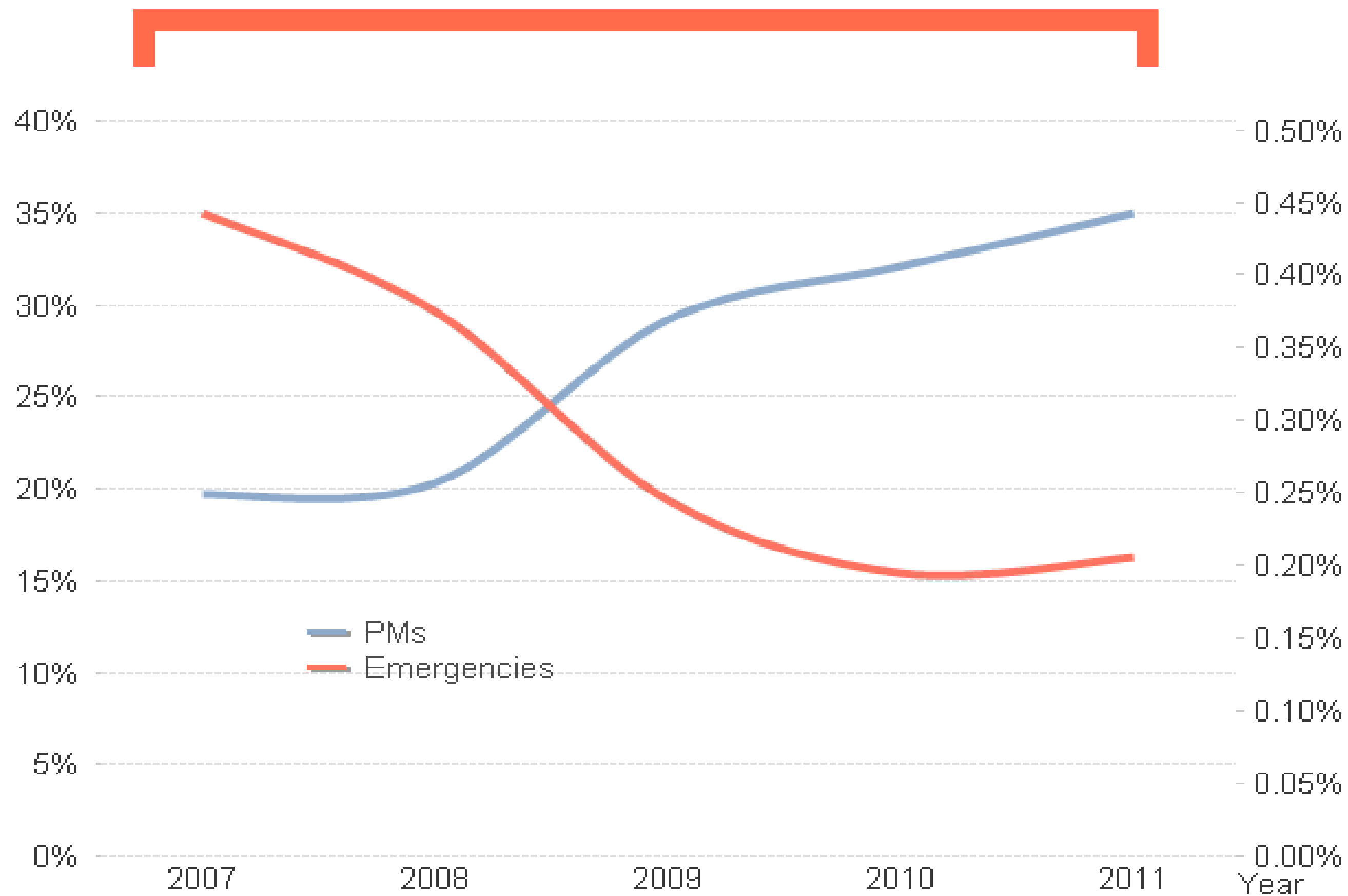
Outcomes:

- > Short term benefit:
 - > Fact based asset repair vs. replace decision making
- > Medium term benefit:
 - > Best value purchasing via asset performance reviews (maintenance history reviews)
- > Long term benefit:
 - > 20+ year capital plans created in seconds
 - > Detailed by category, sub category and asset

VALUE OF PREVENTIVE MAINTENANCE PROGRAM



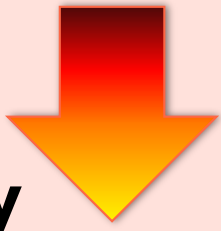
Cost Impact of Consistent PM



> **50% - 65% reduction** in the rate of **emergency** work

Lower cost per work order with the average cost per work order being 28.6% to 39.3% less

Rate of Emergency Work

Rate of Emergencies Average For Group	Rate of Emergencies For PM Masters	Reduction to Emergencies PM Master Group
1.89% 1 out of 53 Work Orders	0.67% 1 out of 147 Work Orders	64.5% In Emergency Work Orders 

Jones Lang LaSalle PM ROI Study

Developed a Financial Model

Equipment	EUL (Years)	EUL Degradation	PM Cost	RM Cost	Energy Efficiency Degradation	Replacement Cost
Air compressor	20	20%	\$472	\$236	35%	\$4,700/HP
Air handler	20	20%	\$501	\$193	50%	\$1/cfm
Boilers	30	20%	\$691	\$2,121	7%	\$20/MBH
Centrifugal chillers	23	36%	\$5,500	0	23%	\$1,000/ton
Reciprocating chillers	20	36%	\$4,400	0	23%	\$1,000/ton
Cooling towers	20	20%	\$300	0	35%(chiller efficiency)	\$90/ton
Condensers (air cooled)	20	20%	\$204	\$188	30%	\$290/ton
DX units	15	50%	\$200	\$1,600	20%	\$1,200/ton
Early-warning fire detection (EWFD) systems	15	20%	\$534	0	N/A	\$150/detector
Centrifugal pumps	20	20%	\$102	\$891	N/A	\$2,110/hp
Fire pumps	20	20%	\$1,650	\$891	N/A	\$40,000
Switchgear	30	10%	\$27	\$21	N/A	\$11,000
Parking lots	100	90%	\$0.07/sf	0	N/A	\$2.46/sf
Roofs	20	25%	\$0.12/sf	0	N/A	\$10/sf
Weatherproofing	75	50%	\$0.33/sf	0	N/A	\$18/sf

10 Year Old Compressor 25 Year Outlook

7HP COMPRESSOR
\$472/YR PM MAINTENANCE
\$944 AVG/MAJOR FAILURE
\$32,900 REPLACEMENT COST

With a PM Program

- 20 year lifespan
- Repair every 4 years
- \$472/yr in PM work
- Replaced in year 10
- After 25 years = \$50,600

Without a PM Program

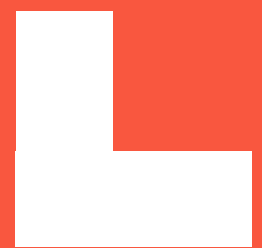
- 16 year lifespan
- Repair every 3 years(\$944)
- \$0/yr in PM work
- Replaced in years 6 and 22
- After 25 years = \$73,650



545%

ROI IN A PM PROGRAM

ACCURATE PROJECTIONS OF REPLACEMENT AND EXTENDED ASSET LIFE
LOWER THE OVERALL COST OF OWNERSHIP



CRV and FCI

CRV (Current Replacement Value)

- > Quick Math:
 - > What is your square footage?
 - > *Cheat sheet: 150 sq. ft./student * student enrollment
 - > What is the average cost for a new school?
 - > *Cheat sheet: \$175-\$200/sq. ft.
- > **CRV = Square Feet * Cost/Square Foot**

CRV and FCI

CRV Example

- > 10,000 student enrollment
- > Square Feet = 10,000 students * 150 sq. ft./student
- > Square Feet = 1,500,000 square feet
- > CRV = 1,500,000 sq. ft. * \$175/sq. ft.

\$262,500,000

CRV and FCI

FCI (Facility Condition Index)

- > % of CRV that needs to be repaired or replaced
- > **FCI = Backlog of repairs / CRV (%)**

FCI Example

- > CRV = \$262,500,000
- > Backlog = \$60,000,000 based upon national average
- > FCI = \$60,000,000 / \$262,500,000

**23% FACILITY
CONDITION INDEX**

Professional Services

DATA COLLECTION

AN ON-SITE SURVEY OF MAJOR BUILDING EQUIPMENT WILL BE CONDUCTED FOR THE PURPOSE OF POPULATING YOUR MAINTENANCE OPERATIONS TOOLS WITH EQUIPMENT DETAILS NEEDED TO FULLY UTILIZE YOUR ACCOUNT. EQUIPMENT TAGGING AVAILABLE AS AN OPTION.

FACILITY CONDITION ASSESSMENTS

OUR INDUSTRY EXPERTS UTILIZE BOTH ON-SITE INSPECTION AND POST VISIT RESEARCH TO PROVIDE A DETAILED CONDITION ANALYSIS OF BUILDING SYSTEMS AND MAJOR RELATED EQUIPMENT. RESULTS ARE THEN POPULATED IN YOUR CAPITAL FORECASTING SOLUTION TO MAXIMIZE THE ACCURACY AND IMPACT OF YOUR CAPITAL PLANNING.

PREVENTIVE MAINTENANCE SCHEDULE CREATION

LET OUR TEAM HELP YOU GET UP-AND-RUNNING IN RECORD TIME. OUR KICK-START PROGRAM HELPS YOU BYPASS HOURS OF MANUAL DATA INPUT BY BUNDLING OUR DATA COLLECTION AND PM SCHEDULE CREATION SERVICES INTO A SINGLE END-TO-END SOLUTION.

PM FIRST STEPS

READY TO GET YOUR PM PROGRAM OFF THE GROUND IN A HURRY? BASED ON COLLABORATION WITH YOUR STAFF, WE HELP TO DEVELOP PM SCHEDULES AND A STANDARD PM TASK BOOK WITHIN YOUR PREVENTIVE MAINTENANCE SOLUTION

DATA MIGRATION SERVICES

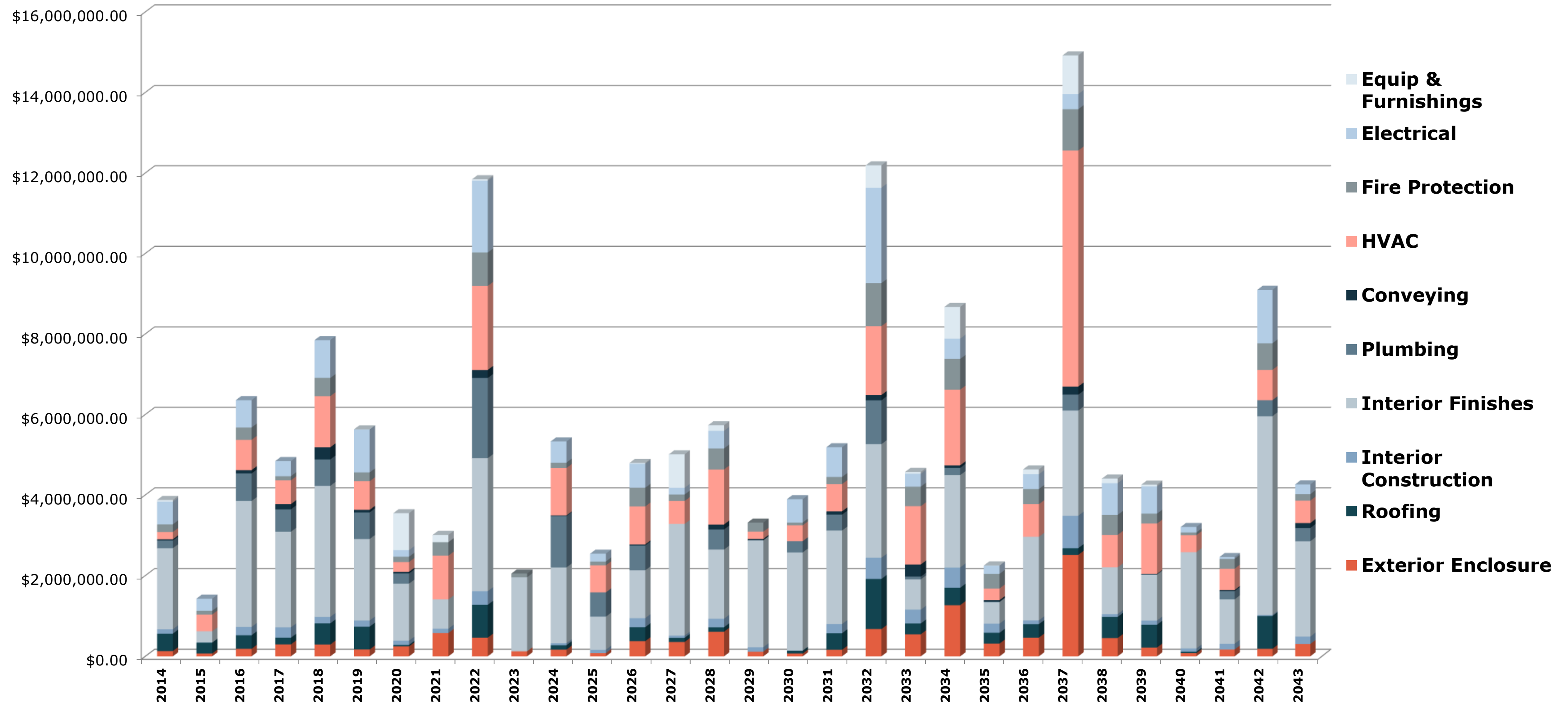
BRINGING DATA OVER FROM A PREVIOUS SOLUTION? NO PROBLEM! WE'LL HELP YOU GET YOUR DATA IMPORTED INTO YOUR SOLUTIONS SO YOU CAN TAKE ADVANTAGE OF THE HISTORICAL REPORTING AND BENCHMARKING CAPABILITIES OF YOUR NEW SOLUTIONS. YOU'VE COLLECTED THE DATA OVER THE YEARS, NOW IS THE TIME TO PUT IT TO GOOD USE.



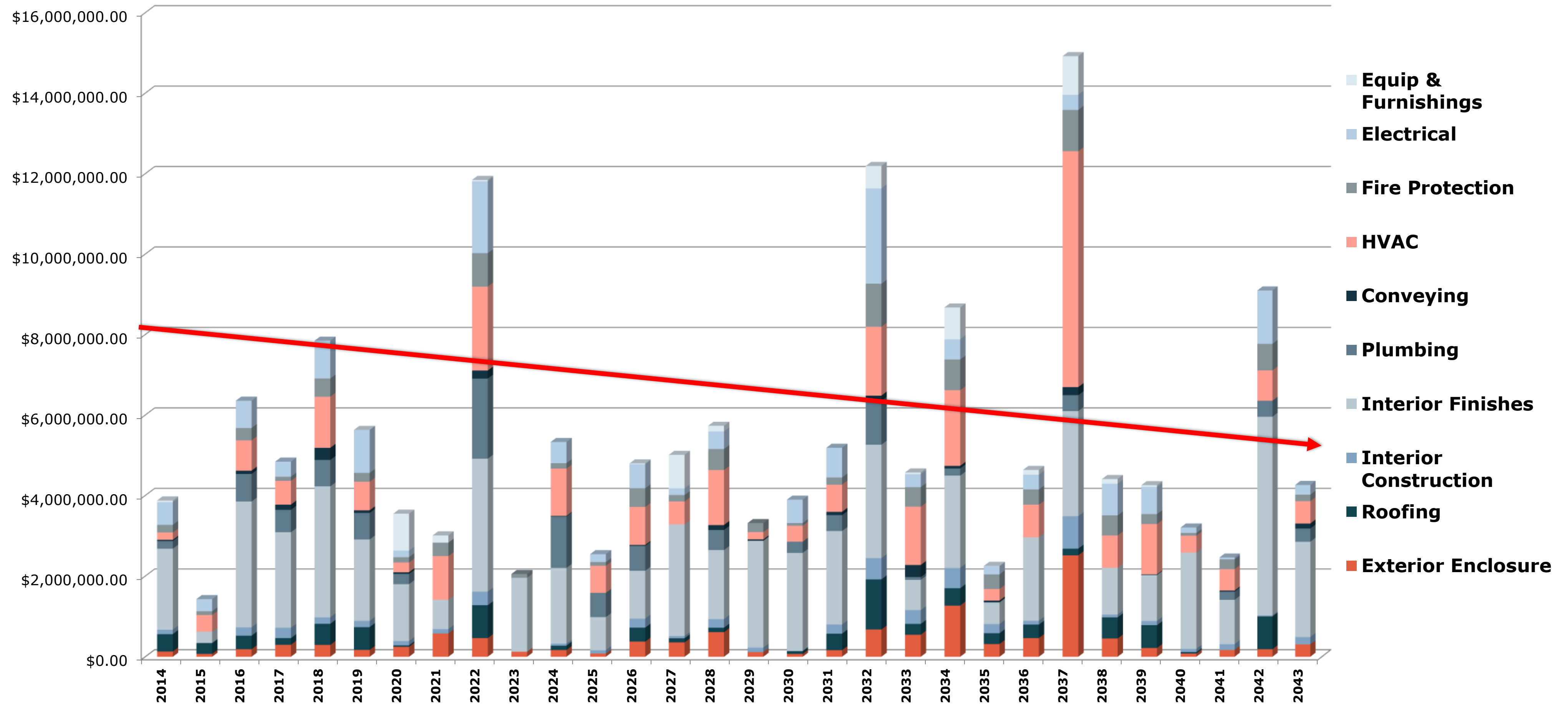
FACILITIES NEED A RADAR!



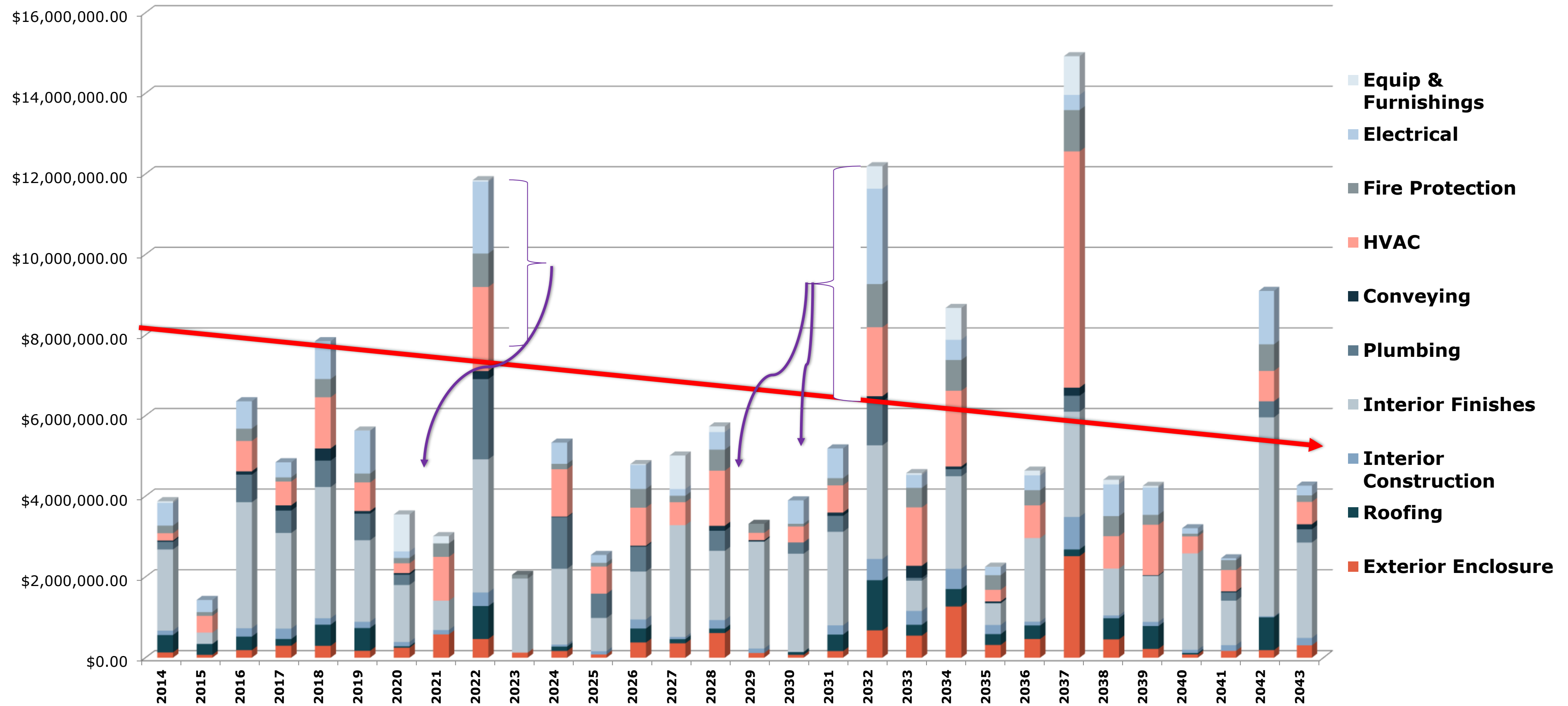
Plan and Prioritize



Plan and Prioritize



Plan and Prioritize



DATA DRIVEN DECISION MAKING



Dude Intelligence = Business Intelligence

Work Orders Per Enrollment Per Year

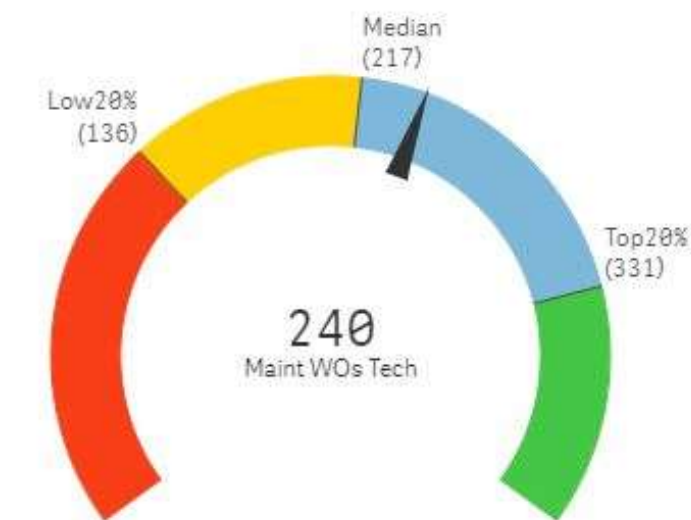
KPIs

- > Set standards
- > Show progress
- > Take out the guesswork



Avg Maintenance Work Orders Assigned Per Employee Per Year

Avg Maint WOs Assigned Per Employee Per Year
Enrollment: 26,588,959

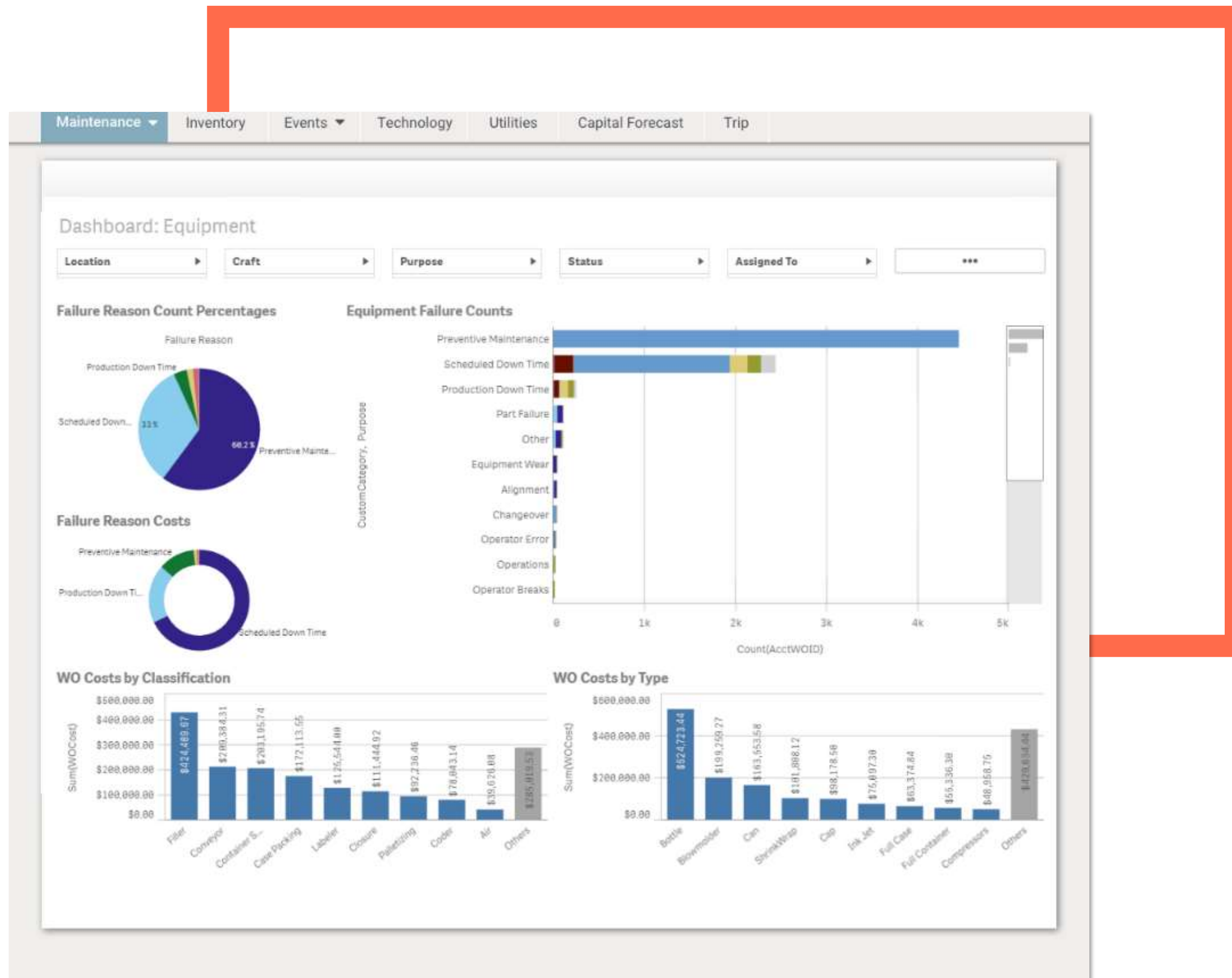


Benchmarking

- > Visibility
- > See how you stack up

Dude Intelligence = Business Intelligence

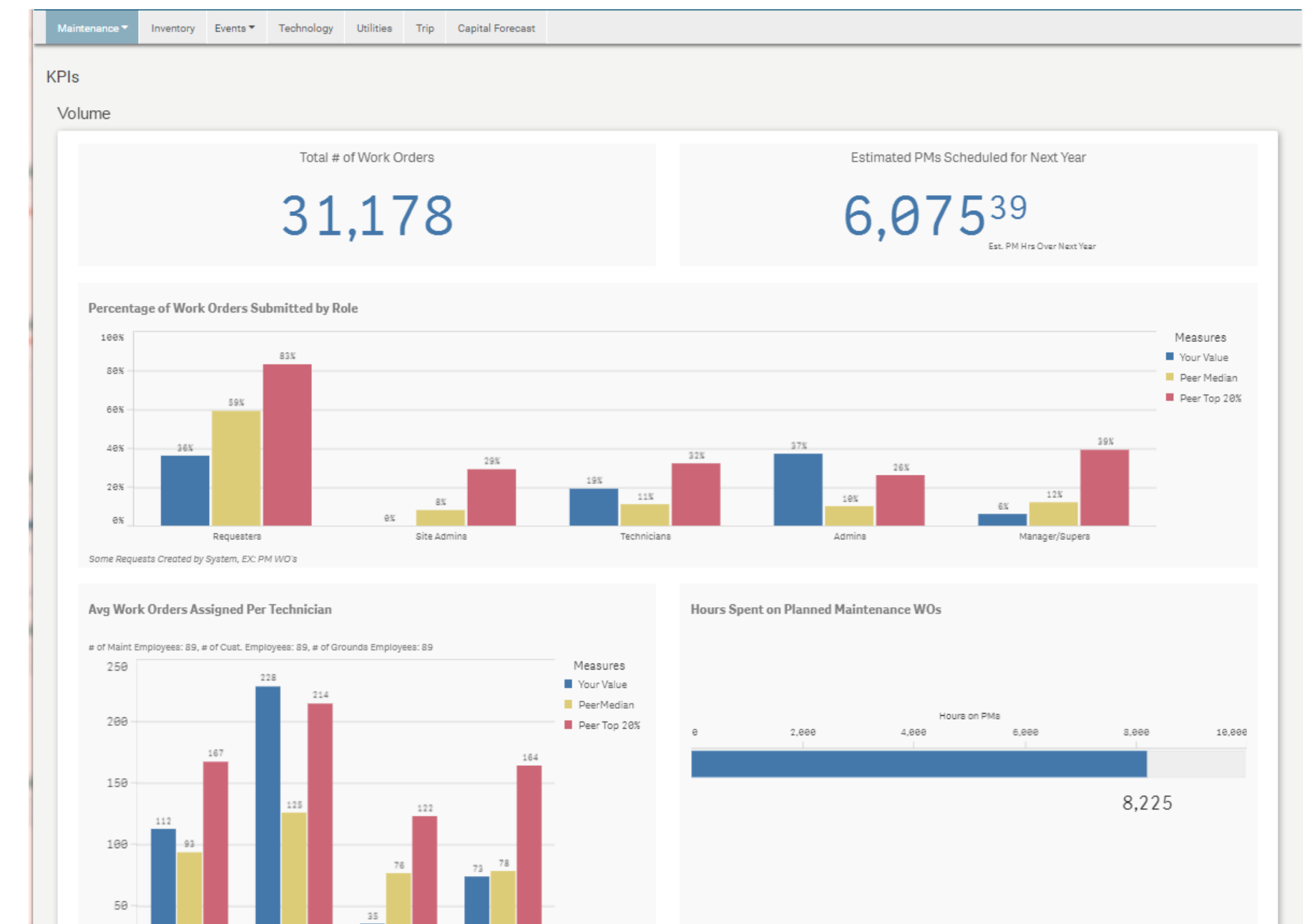
- > KPIs help you:
 - > Set standards
 - > Stop guessing
 - > Show progress



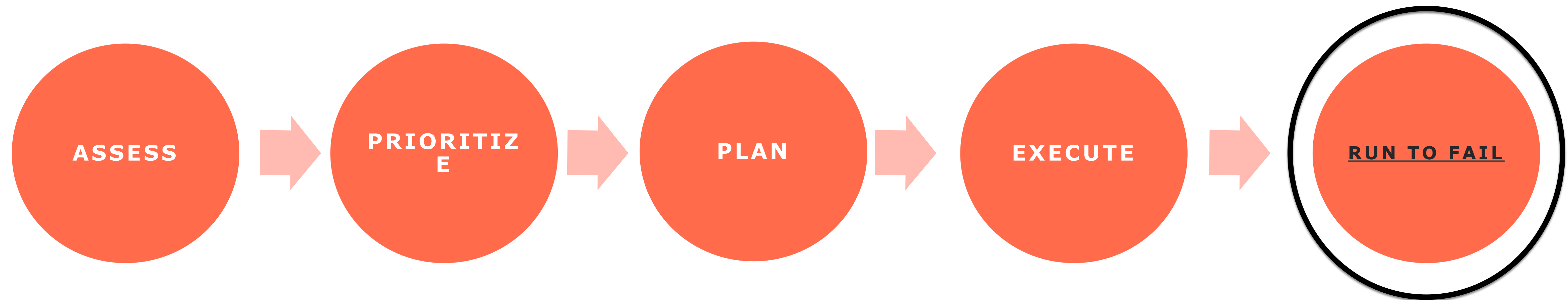
Dude Intelligence = Business Intelligence

Benchmark progress to see how the organization is performing and how clients can improve, justifying staff and budget needs with:

- > Base set of KPIs and Benchmarks
- > 3-year trends
- > Comparative Maps
- > Monthly Executive Summary PowerPoints
- > Operations Dashboards

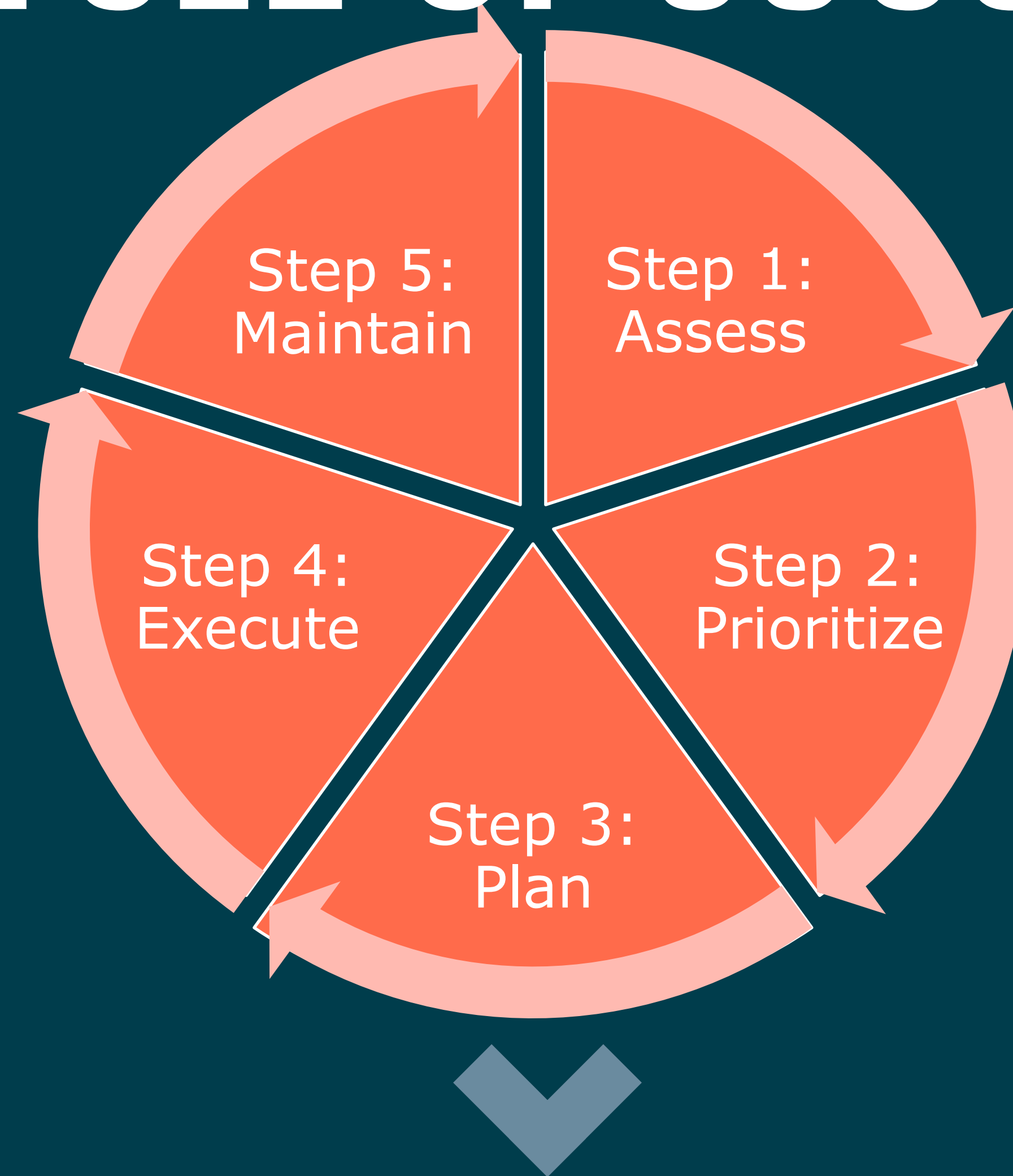


Typical Scenario

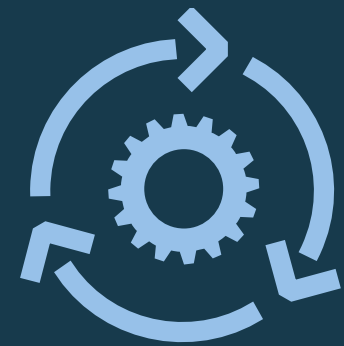


APPEM

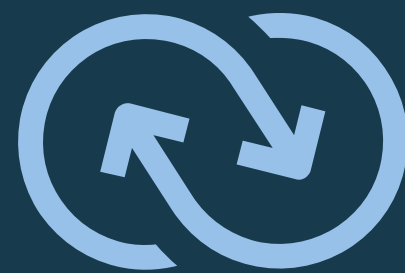
A CYCLE OF SUCCESS



PROFESSIONAL SERVICES



**IMPLEMENTATION
SERVICES**



**DATA
COLLECTION**



**FACILITY
CONDITION
ASSESSMENTS**



**PREVENTIVE
MAINTENANCE
SCHEDULE
CREATION**



**PM FIRST
STEPS**



**DATA
MIGRATION
SERVICES**

Q & A



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THANK YOU!

Please reach out with any additional questions!

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